

# Two new species of Pamphiliidae (Hymenoptera) from Xizang with a key to species from the Himalaya region

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**Abstract:** Species of Pamphiliidae in the Himalaya region are quite rare. Only seven species belonging to three genera of this family have been recorded. Two new species of Pamphiliidae from Linzhi, Xizang of China are described: *Cephalcia xizangica* Wei **sp. nov.** and *Onycholyda nigrothorax* Wei **sp. nov.** *Cephalcia* is recorded from the Himalaya region for the first time. A key to currently known species of Pamphiliidae from Himalayas is provided.

**Key words:** Pamphiliomorpha; Pamphilioidea; taxonomy

## 西藏扁蜂二新种暨喜马拉雅地区扁蜂科种类检索表（膜翅目）

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**摘要:** 喜马拉雅地区的扁蜂科昆虫非常少见, 迄今仅记载 3 属 7 种。本文记述中国西藏林芝地区扁蜂科 2 新种, 即西藏腮扁蜂 *Cephalcia xizangica* Wei **sp. nov.** 和黑胸齿扁蜂 *Onycholyda nigrothorax* Wei **sp. nov.**。腮扁蜂属 *Cephalcia* 在本区是首次报道, 文中还提供了喜马拉雅地区扁蜂科已知种检索表。

**关键词:** 扁蜂亚目; 扁蜂总科; 分类

## Introduction

Pamphiliidae is a small family with 10 extant genera and 329 species known by the end of 2022. The family is Holarctic with more than 2/3 species occurring in eastern Asia. There were only several species recorded from the south part of Asia along Himalayas. Beneš (1971, 1972) reported *Pamphilius kashmirensis* Beneš, 1971 from west Himalaya and *Onycholyda birmanica* Beneš, 1972 from the eastern end of the Himalayas respectively. Shinohara, Naito & F. Huang (1988) described *Pamphilius tibetanus* Shinohara, Naito & F. Huang, 1988, a species with peculiar head color pattern and punctation, from Bomi, Xizang of China. Shinohara & Singh (1989) described *Pamphilius himalayanus* from Himachal Pradesh in north India on the south slope of the western Himalayas. Shinohara, Dong & Naito (1998) described *P. foveatus* Shinohara, Dong & Naito, 1998 and *P. sinensis* Shinohara, Dong & Naito, 1998 from northwest Yunnan of China near north Myanmar and proposed a species

Accepted 19 January 2024. Published online 26 August 2024.

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group for the four species recorded from East Xizang and Northwest Yunnan known so far. The last described species from the region before the end of 2022 was *Acantholyda birmanica* Shinohara & Beneš, 2005, also collected from north Myanmar. In this paper we describe two additional species of the family from eastern Xizang of China.

## Material and methods

Specimens were examined with a Leica SAPO stereomicroscope. Images of adults were taken with a Nikon D700 digital camera and a Leica Z16APO microscope. Images were focus-stacked using Helicon Focus (HeliconSoft, Kharkiv, Ukraine) and further processed with Adobe Photoshop CS 11.0. The terminology of genitalia follows Ross (1945) and terminology of wing venation follows Niu and Wei (2010) except for m-cu being replaced as 1m-cu, and stigma as pterostigma.

The types of these new species are deposited in the Asian Sawfly Museum, Nanchang, China (ASMN).

Abbreviations used in the text are as follows: OCL — the distance between a lateral ocellus and the hind margin of the head; OOL — the distance between an eye and a lateral ocellus; POL — the distance between the mesal margins of the two lateral ocelli.

## Taxonomy

### 1. *Cephalcia xizangica* Wei **sp. nov.** (Figs 1A, 2)

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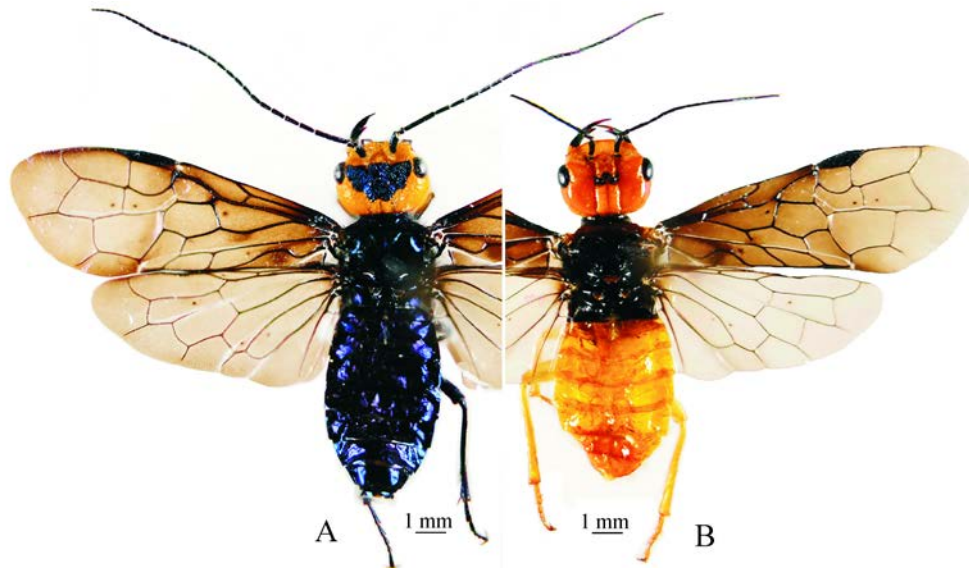


Figure 1. A. *Cephalcia xizangica* Wei **sp. nov.**; B. *Onycholyda nigrothorax* Wei **sp. nov.** Holotypes, ♀.

Description. Female. Holotype. Length 12.2 mm (Fig. 1A). Head yellowish brown, dorsum with a large triangular bluish black macula covering frons, ocellar area, anterior half of postocellar area and dorsal part of inner orbit (Fig. 2A); mandible except for base (Fig. 2C),

other parts of mouthpart, antenna except extreme base of scape (Fig. 2G), black; thorax, abdomen and legs black with distinct bluish metallic tinge, inner side of fore tibia largely pale brown; body hairs black (Figs 2A–E); wing strongly and almost evenly infuscate, pterostigma and veins brownish black.

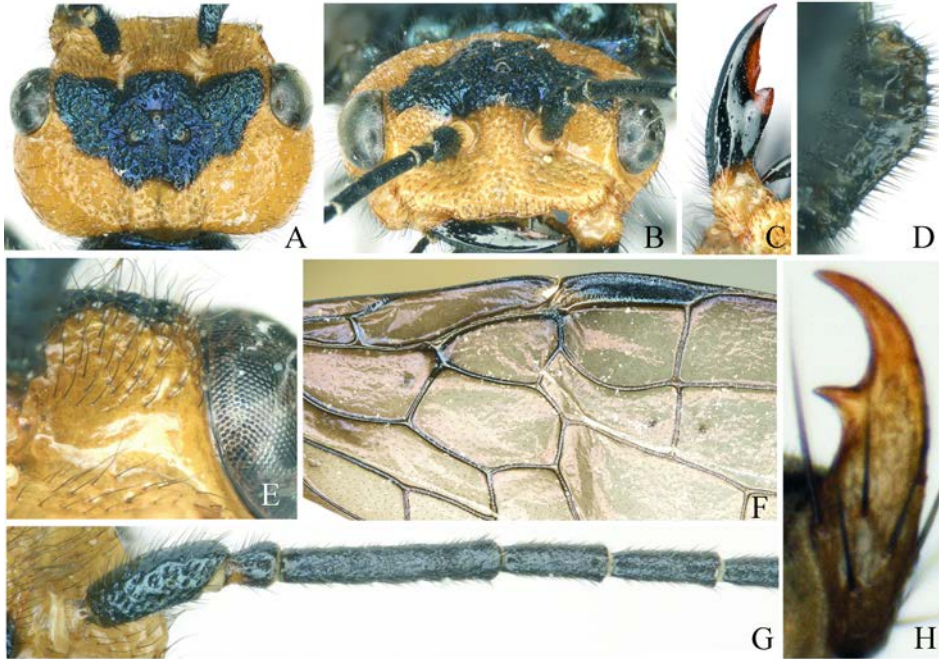


Figure 2. *Cephalcia xizangica* Wei **sp. nov.**, holotype, ♀. A. Head, dorsal view; B. Head, frontal view; C. Left mandible; D. Sheath, lateral view; E. Paraantennal area, frontal view; F. Fore wing, part; G. Basal five antennomeres; H. Hind claw.

Hairs on dorsum of head long and curved, about 2.5 times as long as diameter of median ocellus (Figs 2B, 2E); supraclypeal area, ocellar area, upper inner orbit, frons and anterior of postocellar area coarsely punctured (Fig. 2A), clypeus with large and sparse punctures with distinct smooth interspaces (Fig. 2B); lower third of paraantennal area smooth and glabrous, upper two thirds sparsely punctured with long spines (Fig. 2E); posterior two thirds of postocellar area, temple, upper third of hind orbit very sparsely punctured, strongly shiny; punctures on lower part of hind orbit large and dense; mesoscutal middle lobe sparsely and minutely punctured at middle, middle stripe of mesoscutal lateral lobe and posterior of mesoscutellum with large and dense punctures, mesoscutellar appendage with dense and transverse microsculptures; upper half of anterior wall of parapsis densely punctured mixed with oblique carinae, basin of parapsis finely microsculptured; abdominal terga 1–6 distinctly coriaceous, terga 7–10 smooth, strongly shiny; ventral folds of terga densely microsculptured; sterna 2–6 sparsely punctured, surface smooth and strongly shiny, sternum 7 densely microsculptured, almost matt.

Lateral corner of clypeus distinct, clypeus weakly and bluntly elevated at middle, middle half weakly protruding with anterior margin truncate (Fig. 2B); malar space 2 times as long as diameter of median ocellus; occipital carina fine but distinct, extending to middle of hind orbit; middle fovea absent; facial crest obtuse (Figs 2B, 2E); frontal basin distinct and larger than

ocellus, smooth; head distinctly narrowed behind eyes in dorsal view, temple about 1.8 times as long as eye; postocellar area flat and broader than long, lateral furrows shallow but recognizable, distinctly convergent backwards, transverse suture indistinct (Fig. 2A); apical tooth of left mandible broad with an oblique shoulder (Fig. 2C); antenna very long and slender, almost as long as body length, basal five antennomeres as in Fig. 2G, antennomere 3 clearly longer than scape, 1.1 times as long as antennomeres 4 and 5 combined. Mesoscutellum flat, middle length of appendage 1.5 times as long as diameter of median ocellus; cell C of fore wing glabrous with several short spines near apex; cell Sc1 sparsely pilose; pterostigma narrow; vein 2r meeting pterostigma near apex, m+cu-a absent (Fig. 2F); inner side of fore tibia with 7–8 flattened spines; claw weakly bent with a short inner tooth at middle (Fig. 2H); sheath truncate at apex, peg very short with several apical spines (Fig. 2D).

Male. Unknown.

**Holotype.** ♀, **China**, Xizang, Mainling County, Pai Town, Songlinkou, 94°55'35" E, 29°29'31" N, 3,687 m, 17-VII-2019, Lin LIU & Duo WU legs.

Etymology. This species is named after the type locality “Xizang” of China.

Remarks. This species is similar to *C. isshikii* Takeuchi, 1930 from Japan, but differs from the latter by the following characters: the dorsum of head with black long hairs, about 2.5 times as long as diameter of median ocellus; occipital carina distinct; head yellowish brown with a triangular black macula; antenna with 29 antennomeres, antennomere 3 longer than twice length of antennomere 4; thorax and abdomen with distinct bluish metallic tinge; paraantennal area largely punctured and densely pilose and vein C in fore wing glabrous. In *C. isshikii*, the dorsum of head with pale short hairs, not longer than diameter of median ocellus; occipital carina absent; head reddish brown with ocellar area black; antenna with 25–26 antennomeres, antennomere 3 equal to twice length of antennomere 4; thorax and abdomen with feeble bluish metallic tinge; paraantennal area largely smooth and glabrous, and vein C in fore wing pilose.

## 2. *Onycholyda nigrothorax* Wei sp. nov. (Figs 1B, 3)

<http://zoobank.org/0504A294-B20B-4DFA-B122-F857EC562E85>

Description. Female. Holotype. Length 10 mm (Fig. 1B). Head brownish yellow, narrow ring around each ocellus, a minute dot just below torulus and mandible except for narrow base and apex black; antenna entirely black; thorax black, narrow posterior margin of pronotum and tegula yellowish brown, mesoscutellum and metascutellum each with a small pale brown macula; abdomen yellow with first tergum black; fore wing strongly smoky, slightly paler toward apex, pterostigma and veins black; hind wing feebly but evenly infuscate. Body hairs mostly yellowish brown, stiff hairs on dorsum of mesothorax dark brown.

Body smooth and strongly shiny; apex of clypeus with some large punctures, posterior margin of head with some small punctures; anterior third of mesepisternum with sparse and shallow large punctures, mesepimeron densely microsculptured. Dorsum of head almost glabrous, margins with some long and soft hairs; hairs on dorsum of mesothorax slightly shorter than diameter of median ocellus, hairs on mesepisternum slightly longer than diameter of median ocellus and curved at apex.

Left mandible tridentate, apical tooth with a distinct middle dent (Fig. 3C); right mandible with middle tooth close to inner tooth, inner tooth with a distinct shoulder, incision

between middle and apical tooth broader and deeper than incision between middle and inner tooth (Fig. 3D); clypeus subtruncate at apex, middle carina distinct, lateral corners obtuse (Fig. 3F); malar space 1.5 times as long as diameter of median ocellus and 0.6 times as long as pedicellum; middle fovea small but distinct; facial crest low and obtuse; eyes small, distance between them at level of toruli about 2.8 times longest axis of eye, inner margins of eyes divergent downwards (Figs 3B, 3F); circular ocellar furrow deep, postocellar furrow shallow, interocellar furrow absent, transverse suture indistinct; antennal furrow very deep and connected with lateral furrows of postocellar area; head distinctly narrowed behind eyes in dorsal view, postocellar area longer than broad, distinctly convex, anterior third with an indistinct middle furrow, lateral furrows deep and subparallel (Fig. 3B); occipital carina developed, extending to lateral corners of postocellar area; antenna with 24 antennomeres, length ratio of basal five antennomeres: 40 : 14 : 31 : 16 : 15 (Fig. 3A). Mesoscutal middle lobe with fine and shallow middle furrow; mesoscutellum flat without middle furrow or carina. Claw with inner tooth much shorter than apical tooth (Fig. 3G); cell C in fore wing densely pilose, anterior two thirds of cell Sc1 densely pilose, posterior third of Sc1 and Sc2 entirely glabrous; petiole of hind anal cell as long as cu-a. Sheath roundish at apex, peg large, longer than broad, each with a long apical setae (Fig. 3E).

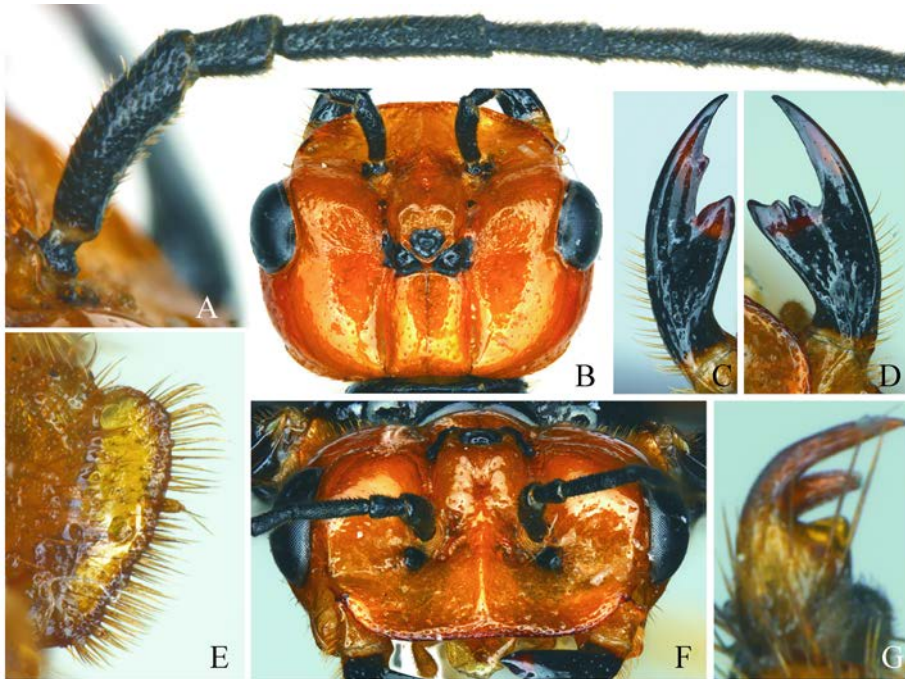


Figure 3 *Onycholyda nigrothorax* Wei **sp. nov.**, holotype ♀. A. Basal seven antennomeres; B. Head, dorsal view; C. Left mandible; D. Right mandible; E. Sheath, lateral view; F. Head, frontal view; G. Hind claw.

Male. Unknown.

**Holotype.** ♀, **China**, Xizang, Mainling County, Pai Town, Songlinkou, 94°55'35" E, 29°29'31" N, 3,687 m, 29-VII-2018, Lin LIU leg. **Paratypes.** 1♀, data as holotype; 1♀, Xizang, Nyingchi, Mt. Galongla, 95°41.8' E, 29°47.33' N, 3,666 m, 19-VII-2016, Wei XIAO

& Yilin XIAO legs.

Etymology. This species is named after the thorax being black.

Remarks. This species is somewhat similar to *O. xanthogaster* Shinohara, 1999 from Shaanxi and Gansu of China, but differs from it by the head almost entirely brownish yellow and antenna entirely black; the fore wing deeply smoky with pterostigma and veins black; the left mandible with a distinct middle tooth; thorax black, the narrow posterior margin of pronotum and tegula entirely yellow, mesoscutellum and metascutellum each with a small pale brown macula. The body and wing color can easily distinguish the new species from its congeners.

The nine species of Pamphiliidae occurring within Himalayas region can be recognized by the following key.

### Key to species of Pamphiliidae from Himalayas region

1. Fore wing membrane irregularly coriaceous apically, without distinct folds; tarsal claw feebly bent, with minute middle inner tooth perpendicular to the claw; tibial spur with soft membranous hyaline tip; metabasitarsus clearly shorter than tarsomeres 2–4 together, first tarsal pulvillus longer than 2/3 length of metabasitarsus. *Cephalcinae* ..... 2
- Fore wing membrane regularly coriaceous and more or less folded apically; tarsal claw strongly bent, with oblique inner tooth slightly shorter than apical tooth; tibial spur completely sclerotized, hard at the tip; metabasitarsus clearly longer than tarsomeres 2–4 together, first tarsal pulvillus shorter than 1/4 length of metabasitarsus. *Pamphiliinae* ..... 3
2. Fore tibia with preapical spur; body including antenna and leg largely yellowish brown with some minute black maculae, without metallic tinge; wing hyaline; antenna about as long as head and thorax combined. North Myanmar ..... *Acantholyda birmanica* Shinohara & Beneš
- Fore tibia without preapical spur; head capsule brownish yellow, dorsum with a triangular black macula, body otherwise including antenna and leg black with distinct metallic tinge; wing deeply smoky, slightly paler toward apex; antenna almost as long as entire body. China (East Xizang) ..... *Cephalcia xizangica* Wei **sp. nov.**
3. Claw with a large and acute basal lobe; malar space with a distinct basin and peculiar curved setae. *Onycholyda* ..... 4
- Claw base gradually broadened but without acute basal lobe; malar space without distinct basin and peculiar curved setae. *Pamphilius* ..... 5
4. Head entirely yellowish brown; antenna entirely black; mesothorax black except for pale mesoscutellum; wing deeply smoky and slightly paler toward apex, veins and pterostigma entirely blackish brown; fore wing with cell C entirely and densely pilose; left mandible with a distinct middle tooth. China (East Xizang) ..... *O. nigrothorax* Wei **sp. nov.**
- Head yellowish brown with distinct black stripe on ocellar area and lateral furrows of postocellar area; antenna yellowish brown, slightly darkened toward apex; mesothorax with many large pale maculae; wing weakly infuscate, pterostigma dark brown, vein C and all veins of basal 1/4 of wings yellowish brown; anterior margin of cell C sparsely pilose; left mandible without middle tooth. North Myanmar ..... *O. birmanica* Beneš
5. Head entirely black; cell C in fore wing pilose; ovipositor appendage large and stout; head coarsely punctured, dorsum with long and curved hairs almost 3 times as long as diameter of median ocellus. China (Northwest Yunnan) ..... *P. foveatus* Shinohara, Dong & Naito
- At least middle of clypeus and upper hind orbit with large pale maculae; cell C in fore wing glabrous, at most with several short spines near apex; ovipositor appendage small and slender; hairs on dorsum of head about 1–2 times as long as diameter of median ocellus ..... 6
6. Anterior margin of clypeus almost truncate, with distinct lateral black macula; antennomere 3 almost 3 times as long as antennomere 4. West Himalaya (Kashmir) ..... *P. kashmirensis* Beneš

- . Clypeus entirely brownish yellow, anterior margin distinctly protruding; antennomere 3 less than 2 times as long as antennomere 4 ..... 7
7. Head brownish yellow, ocellar area and lateral furrows of postocellar area black; pterostigma entirely pale brown; antennomere 3 1.4 times as long as antennomere 4. West Himalaya (North India) .....  
..... *P. himalayanus* Shinohara & Singh
- . Dorsum of head largely black, at least postocellar area entirely black; anterior and posterior margins of pterostigma blackish brown; antennomere 3 about 1.6–1.7 times as long as antennomere 4. East Himalaya ... 8
8. Hind orbit largely brownish yellow; anterior margin of clypeus roundly protruding in middle third, truncate in lateral third; antenna entirely yellow. China (East Xizang); Nepal ... *P. tibetanus* Shinohara, Naito & F. Huang
- . Hind orbit largely black; anterior margin of clypeus roundly protruding as a whole and medially truncated; antenna scape black, pedicellum and flagellum brown. China (West Yunnan).....  
..... *P. sinensis* Shinohara, Dong & Naito (The Shaanxi record of this species is a misidentification.)

## Acknowledgements

Our cordial thanks are due to Mr. Biao CHU of the Forestry and grassland administration of Xizang Autonomous Region for his kind help when we collected sawflies within Xizang. The research was partly supported by the National Natural Science Foundation of China (32370500; 31970447; 31672344).

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